Space Weather Forecast

Issued on Saturday, 26 August 2023 at 01:16 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of isolated Moderate flares throughout (R1-R2 Blackouts).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: One Moderate flare was observed from the small but complex region in the southeast. This consists of two opposite polarity spots within the same feature, resulting in an increased flare risk despite any recent lack of activity. The largest region is now moving towards the north-centre disc, but remains inactive despite some ongoing development and a more potentially unstable north-south orientation of its spots. The other regions are all small and simple unipolar spots, although one of these that is now approaching the west limb, has shown some low level activity in recent days.

No Earth-directed CMEs (coronal mass ejections) have been observed, with the previous candidates assessed as missing.

Solar Wind / Geomagnetic Activity: Brief coronal hole sourced fast wind conditions eased, with a return background conditions. Observed speeds were initially elevated at around 470 km/s but fell to background 350-400kms by 25/1200 UTC. The interplanetary magnetic field (IMF) was weak throughout. The north-south component has been mainly negative (southward) with only brief periods of positive (northward) direction, but was also weak. Geomagnetic activity was Quiet to Unsettled (Kp 0-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) persisted at background with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar Activity is expected to be generally Low, but with a chance of isolated Moderate class flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. The next forecast solar wind enhancement will be the arrival of a further coronal hole source fast either late day 1 or day 2 (26-27 Aug). These winds then easing day 3 (28 Aug) onward, Geomagnetic activity is forecast to be mainly Quiet at first, but rising to Unsettled with a chance of Active intervals from the fast wind enhancement later day 1 or day 2 (26-27 Aug). Activity then easing to be Quiet with Unsettled intervals.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to persist at background with no solar radiation storms expected.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	10	1	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	30	30	30	30
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	2	2	2	2
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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